

Page 60

Line 4, change "means" to --device--.

Line 20, change "means" to --device--.

Line 21, change "means" to --device--.

Page 61

Line 9, change "means" to --device--.

Line 13, change "means" to --device--.

IN THE CLAIMS:

Please amend the claims as follows:

1. (Amended) A substrate processing apparatus, comprising:

a substrate transfer section;

a plurality of modules, each of said plurality of modules being detachably attached to

said substrate transfer section; and

a first substrate transfer [means] device provided in said substrate transfer section [and capable of] for transferring [a substrate or] substrates to said plurality of modules,

wherein said plurality of modules are piled up[,], adjacent to, but spaced separately from one another[,], in a substantially vertical direction,

wherein each of said plurality of modules comprises:

a substrate processing chamber, having a hermetic structure, for processing said [substrate or said] substrates;

an intermediate chamber having a hermetic structure and [being] provided between said substrate processing chamber and said substrate transfer section;

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a first valve provided between said substrate processing chamber and said intermediate chamber, said first valve [being] capable of establishing hermetic isolation between said substrate processing chamber and said intermediate chamber when [said first valve is] closed, and [being] capable of allowing said [substrate or said] substrates to pass [through said first valve when said first valve is] therethrough when opened; and

a second valve provided between said intermediate chamber and said substrate transfer section, said second valve [being] capable of establishing hermetic isolation between said intermediate chamber and said substrate transfer section when [said second valve is] closed, and [being] capable of allowing said [substrate or said] substrates to pass [through said second valve when said second valve is] therethrough when opened, and

wherein said intermediate chamber is provided with a second substrate transfer [means capable of] device for transferring said [substrate or said] substrates to said substrate processing chamber.

2. (Amended) A substrate processing apparatus as recited in claim 1, wherein, in each of said plurality of modules [comprises]:

said substrate processing chamber[, having] has a hermetic structure of vacuum level[,] for processing said [substrate or said] substrates;

said intermediate chamber [having] has a hermetic structure of vacuum level [and being provided between said substrate processing chamber and said substrate transfer section];

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said first valve [provided between said substrate processing chamber and said intermediate chamber, said first valve being] is capable of establishing hermetic isolation of vacuum level between said substrate processing chamber and said intermediate chamber when [said first valve is] closed, and [being] is capable of allowing said [substrate or said] substrates to pass [through said first valve when said first valve is] therethrough when opened; and

said second valve [provided between said intermediate chamber and said substrate transfer section, said second valve being] is capable of establishing hermetic isolation of vacuum level between said intermediate chamber and said substrate transfer section when [said second valve is] closed, and [being] is capable of allowing said [substrate or said] substrates to pass [through said second valve when said second valve is] therethrough when opened.

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4. (Amended) A substrate processing apparatus as recited in claim 1, wherein said intermediate chamber [of each of said plurality of modules] is further provided with a substrate holding [means] device capable of holding said [substrate or said] substrates, said substrate holding [means] device being positioned closer to said substrate transfer section than said second substrate transfer [means] device.

Claim 5 (Amended)

Line 2, delete "substrate" (second occurrence);

Line 3, delete "or said".

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6. (Amended) A substrate processing apparatus as recited in claim 5, wherein [said substrate processing chamber is a substrate processing chamber wherein said substrate is or] said substrates are processed under a reduced pressure in said substrate processing chamber.

7. (Amended) A substrate processing apparatus as recited in claim 1, wherein said substrate transfer section is further provided with a cassette holding [means] device for holding a cassette capable of accommodating a plurality of said substrates, said first substrate transfer [means] device being capable of transferring said [substrate or said] substrates between said cassette [held by said cassette holding means] and said plurality of modules.

Claim 8 (Amended)

Line 2, replace "means" with --device--.

Claim 9 (Amended)

Line 4, replace "means" with --device--.

Claim 10 (Amended)

Line 8, replace "means" with --device--.

Claim 11 (Amended)

Line 4, replace "means" with --device--.

12. (Amended) A substrate processing apparatus as recited in claim 11,
wherein said substrate processing apparatus is a plasma enhanced processing apparatus
for processing said substrates utilizing plasma, [said substrate processing apparatus] and
includes a second substrate holding [means] device capable of holding said plurality of
substrates with the substrates being laterally arranged side by side, and
wherein said substrate transfer [means] device is capable of transferring simultaneously
said plurality of substrates [with the substrates being] laterally arranged side by side.

Claim 11 (Amended)

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Line 4, replace "means" with --device--.

14. (Amended) A substrate processing apparatus, comprising:
a substrate transfer section;
a plurality of modules, each of said plurality of modules being detachably mounted to
said substrate transfer section; and

a first substrate transfer [means] device provided in said substrate transfer section [and capable of] for transferring [a substrate or] substrates to said plurality of modules,

wherein said plurality of modules are piled up[,] adjacent to, but spaced separately from one another [,] in a substantially vertical direction,

wherein each of said plurality of modules comprises:

a substrate processing chamber, having a hermetic structure, for processing said [substrate or said] substrates;

first and second intermediate chambers provided between said substrate processing chamber and said substrate transfer section, each [of said first and second intermediate chambers] having a hermetic structure, said first intermediate chamber being located closer to said substrate processing chamber than said second intermediate chamber, and said second intermediate chamber being located closer to said substrate transfer section than said first intermediate chamber;

a first valve provided between said substrate processing chamber and said first intermediate chamber, said first valve [being] capable of establishing hermetic isolation between said substrate processing chamber and said first intermediate chamber when [said first valve is] closed, and [being] capable of allowing said [substrate or said] substrates to pass [through said first valve when said first valve is] therethrough when opened;

a second valve provided between said first intermediate chamber and said second intermediate chamber, said second valve [being] capable of establishing hermetic isolation between said first intermediate chamber and said second intermediate

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chamber when [said second valve is] closed, and [being] capable of allowing said substrate or said substrates to pass [through said second valve when said second valve is] therethrough when opened; and

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a third valve provided between said second intermediate chamber and said substrate transfer section, said third valve [being] capable of establishing hermetic isolation between said second intermediate chamber and said substrate transfer section when [said third valve is] closed, and [being] capable of allowing said [substrate or said] substrates to pass [through said third valve when said third valve is] therethrough when opened,.

wherein said second intermediate chamber is provided with a substrate holding [means] device capable of holding said [substrate or said] substrates, and

wherein said first intermediate chamber is provided with a second substrate transfer [means] device capable of transferring said [substrate or said] substrates between said substrate holding [means] device and said substrate processing chamber.

15. (Amended) A substrate processing apparatus as recited in claim 14, wherein, in each of said plurality of modules [comprises]:

said substrate processing chamber[, having] has a hermetic structure of vacuum level[,]
for processing said [substrate or said] substrates;

said first and second intermediate chambers [provided between said substrate processing chamber and said substrate transfer section, each of said first and second intermediate chambers having] each have a hermetic structure of vacuum level[, said first intermediate

chamber being located closer to said substrate processing chamber than said second intermediate chamber, and

said second intermediate chamber being located closer to said substrate transfer section than said first intermediate chamber];

said first valve [provided between said substrate processing chamber and said first intermediate chamber, said first valve being] is capable of establishing hermetic isolation of vacuum level between said substrate processing chamber and said first intermediate chamber when [said first valve is] closed, and [being] is capable of allowing said [substrate or said] substrates to pass [through said first valve when said first valve is] therethrough when opened;

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said second valve [provided between said first intermediate chamber and said second intermediate chamber, said second valve being] is capable of establishing hermetic isolation of vacuum level between said first intermediate chamber and said second intermediate chamber when [said second valve is] closed, and [being] is capable of allowing said [substrate or said] substrates to pass [through said second valve when said second valve is] therethrough when opened; and

said third valve [provided between said second intermediate chamber and said substrate transfer section, said third valve being] is capable of establishing hermetic isolation of vacuum level between said second intermediate chamber and said substrate transfer section when [said third valve is] closed, and [being] is capable of allowing said [substrate or said] substrates to pass [through said third valve when said third valve is] therethrough when opened.

Claim 17 (Amended)

Line 2, delete "substrate" (second occurrence);

Line 3, delete "or said".

18. (Amended) A substrate processing apparatus as recited in claim 17, wherein
[said substrate processing chamber is a substrate processing chamber wherein said substrate is
or] said substrates are processed under a reduced pressure in said substrate processing section.

Claim 19 (Amended)

Line 2, replace "means" with --device--;

Line 3, replace "means" with --device--.

Claim 20 (Amended)

Line 3, replace "means" with --device--;

Line 5, replace "means" with --device--;

Line 7, replace "means" with --device--.

Claim 21 (Amended)

Line 2, replace "means" with --device--.

Claim 22 (Amended)

Line 4, replace "means" with --device--.

Claim 23 (Amended)

Line 8, replace "means" with --device--.

Claim 24 (Amended)

Line 4, replace "means" with --device--.

25. (Amended) A substrate processing apparatus as recited in claim 24,

wherein said substrate processing apparatus is a plasma enhanced processing apparatus for processing said substrates utilizing plasma, [said substrate processing apparatus] and includes a second substrate holding [means] device capable of holding said plurality of substrates with the substrates being laterally arranged side by side, and

wherein said substrate transfer [means] device is capable of transferring simultaneously said plurality of substrates [with the substrates being] laterally arranged side by side.

Claim 26 (Amended)

Line 4, replace "means" with --device--.

REMARKS

Reconsideration and allowance in view of the foregoing amendments and the following remarks are respectfully requested. Claims 1-26 are pending in the application. Claims 1 and 14 are independent.

35 U.S.C. §103(a) Rejections1. Claims 1-4, 9, 14-16 and 22.

Claims 1-4, 9, 14-16 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,186,718 to Tepman et al. in view of Takagi (JP 2-152251). This rejection is respectfully traversed.

Initially, Applicants note that they have amended the claims solely for clarity so as to place them in better form for U.S. practice, and not to define over the cited prior art. Applicants respectfully submit that Tepman et al., either alone or in combination with Takagi, fail to teach or suggest the ^{claimed} second substrate transfer device which is provided in each of the plurality of detachably attached modules, in addition to the first substrate transfer device provided in the substrate transfer section to which the plurality of modules are detachably attached, as disclosed in claims 1 and 14 of the present application. This is significant in that, because each module has an intermediate chamber and a second transfer device, a substrate can be transferred under atmospheric pressure to each of the modules by the first transfer device, and the substrate can then be transferred under vacuum from the second transfer device to the substrate processing chamber, thereby making it unnecessary for all transfer regions to have hermetic structures held at a vacuum. This simplifies the structural design and reduces the overall cost, as well as conserves space.

Tepman et al. is directed to a wafer processing system which includes a buffer robot chamber 24, a buffer robot 40 in buffer robot chamber 24, intermediate processing or treatment chambers 26 and 27 connected to buffer robot chamber 24, a single transfer robot chamber 28 connected to the intermediate processing chambers 26 and 27, a single transfer

robot 42 provided in the transfer robot chamber 28, and five vacuum processing chambers 34 connected to the transfer robot chamber 28.

As the Examiner points out, "the housing 22 is monolith, i.e. it is machined or otherwise fabricated of one piece of materials such as aluminum to form the four chamber cavities 24, 26, 27 and 28 and the interconnecting corridors or pathways 30 and 32." (see column 4, lines 30-34.). Tepman cannot teach of separate transfer devices in both a substrate transfer section and each of the detachable modules, because there are no detachable modules whatsoever in Tepman et al., everything is interconnected. Accordingly, Tepman et al. does not disclose an apparatus wherein a plurality of modules are detachably attached to a substrate transfer section having a substrate transfer device, and each of the modules includes a substrate processing chamber and another substrate transfer device, as claimed.

Takagi is directed to a vertical-type semiconductor manufacturing system which includes a plurality of process chambers 2 stacked in a vertical direction, a cassette elevator 11 for transferring a cassette to positions corresponding to positions of the process chambers 2, cassette accommodating chambers, each corresponding to positions of each of the process chambers 2, and a plurality of wafer transfer robots 14 corresponding to each of the process chambers 2 for transferring a wafer from a transferred cassette to one of the process chambers 2, and for transferring a processed wafer to a cassette held in one of the cassette accommodating chambers. However, there is no description that process chambers 2 are detached, nor that process chambers 2 and wafer transfer robots 14 are detached together. More importantly, Takagi's wafer transfer robot 14 transfers a wafer between a cassette and the process chamber 2, and does not teach or suggest using the two kinds of substrate

transferring devices of the present invention, one of which transfers a substrate to and from a plurality of modules, the other of which transfers a substrate to and from a substrate processing chamber, as claimed.

Further, and in addition to the above distinctions, Applicants submit that the Examiner may have misunderstood or misapplied both Tepman et al. and Takagi. For example, the Office Action, on page 3, pp. iv., and page 4, pp x. recites the element 24 in Fig. 1 of Tepman et al. as being both a "substrate transfer section" and "an intermediate chamber". This cannot be possible with the claimed invention, nor is it possible with Tepman et al. Further, the Examiner asserts on page 5, paragraph 2, lines 3-4 that Takagi provides for an elevator capable of vertically moving a first substrate transfer means (item 11, 14, constitution). Takagi, however, does not disclose an elevator capable of vertically moving a first substrate transfer means, but only discloses an elevator capable of vertically moving a cassette.

Accordingly, Applicants submit that, even assuming *arguendo* that Takagi could be combined with Tepman et al., which Applicants submit it could not, Takagi fails to cure the deficiencies in Tepman et al., by failing to provide an apparatus wherein each of a plurality of detachably attached modules includes a second substrate transfer device, in addition to the first substrate transfer device provided in the substrate transfer section to which the plurality of modules are detachably attached, as claimed in claims 1 and 14. At best, the combination of Tepman et al. and Takagi describes a system wherein a plurality of modules having only a processing chamber 34 and no corresponding substrate transferring device, are piled up separately in a vertical direction and detachably attached to a transfer robot chamber.

Therefore, in view of the above, Applicants respectfully request withdrawal of the rejection and allowance of claims 1 and 14, and claims 2-4, 9, 15, 16 and 22, dependent thereon.

2. Claims 5, 6, 17 and 18.

Claims 5, 6, 17 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tepman et al. and Takagi in view of Lee (U.S. Patent No. 5,616,718). This rejection is respectfully traversed.

Applicant submits that Lee fails to remedy the deficiencies of Tepman et al. and Takagi with respect to independent claims 1 and 14. As such, claims 5, 6, 17 and 18 are allowable by virtue of their dependency, as well as on their own merits. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

3. Claim 7.

Claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Tepman et al. and Takagi in view of Junichi (JP 4-240721). This rejection is respectfully traversed.

Applicant submits that Junichi fails to remedy the deficiencies of Tepman et al. and Takagi with respect to independent claim 1. Applicants also note that the Office Action reads, in paragraph 4, page 6, lines 2 to 1 from the bottom, "Sato Junichi describes cassette holding means (item 21) accommodating a plurality of substrates. . . .", however, item 21 is not a cassette holding means, but a cassette itself. As such, claim 7 is allowable by virtue of its dependency, as well as on its own merits. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

4. Claim 8.

Claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Tepman et al., Takagi and Junichi in view of Yamazaki (U.S. Patent No. 4,582,720). This rejection is respectfully traversed.

Applicant submits that Yamazaki fails to remedy the deficiencies of Tepman et al. and Takagi with respect to independent claim 1. As such, claim 8 is allowable by virtue of its dependency, as well as on its own merits. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

5. Claims 10-13.

Claims 10-13, 19-21 and 23-26¹ stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tepman et al. and Takagi in view of Yamazaki. This rejection is respectfully traversed.

Applicant submits that Yamazaki fails to remedy the deficiencies of Tepman et al. and Takagi with respect to independent claims 1 and 14. As such, claims 10-13, 19-21 and 23-26 are allowable by virtue of their dependency, as well as on their own merits. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, Applicants submit that the application is in condition for allowance. A favorable action in the form of a Notice of Allowance is earnestly solicited.

¹ Applicants assume that claims 23-26 have been rejected by this reference, since claims 10-13